



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

**D2374**  
**Job Sheet 179533**



Part No: D2374

Job Qty: 16 ea

Part Name: Stud



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 6/20/18

Job Tracking No:

Due Date: 7/16/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG REV A IPP D 03.04.04 Reformat; Made on Cobra KJ/RF IPP Rev:E Now on Doosan Lathe 08-05-05  
JLM Verified By:EC

Ship Via:

### Bill of Materials

### Job Routing

| Op No | Operation          | Qty    | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off |
|-------|--------------------|--------|------------|----------|-----------|---------|-----------------------|-----------|----------|
|       |                    |        |            |          | Setup hrs | Run Hrs | Workcenter / Supplier | Lead Time |          |
| 90    | Start up Operation | 16 Ea  | 7/16/18    | 7/16/18  | 0.00      | 0.00    | Start Up Machining    |           |          |
| 100   | Doosan             | 16 pcs | 7/16/18    | 7/16/18  | 0.07      | 2.64    | Doosan                |           |          |
| 120   | QC                 | 16 pcs | 7/16/18    | 7/16/18  | 0.00      | 0.00    | QC8                   |           |          |
| 130   | Packaging          | 16 pcs | 7/16/18    | 7/16/18  | 0.00      | 0.00    | Packaging3            |           |          |
| 140   | QC21-SA            | 16 Ea  | 7/16/18    | 7/16/18  | 0.00      | 0.00    | QC21                  |           |          |

Part Op 100 - 1- Turn as per Folio FA156 Rev: \_\_\_\_\_ & Dwg D2374 Rev: \_\_\_\_\_ 2- Mill as per Folio FA156 Rev: \_\_\_\_\_ & Dwg  
Descriptions: D2374 Rev: \_\_\_\_\_ 3-Deburr per dwg D2374

DAS  
21  
3-89

AUG 08 2018

### Job BOM

| Part / Item  | Component Name                   | Quantity             | Operation             | Container |
|--------------|----------------------------------|----------------------|-----------------------|-----------|
| MDELINR1.000 | Delrin Round Bar 1" Color: Black | 2.0336 ft (.1271 ea) | 90-Start up Operation | 5030561   |

49,562

### Job Allocations

| Operation             | Component Part | Required | Inventory | Allocated |
|-----------------------|----------------|----------|-----------|-----------|
| 90-Start up Operation | MDELINR1.000   | 2        | 13        | 0         |

### Part Specifications

| Spec No | Description | Target/Tolerance               | Limits         | Type     | Special Comments |
|---------|-------------|--------------------------------|----------------|----------|------------------|
| 1       | Stud        | 1.000Inches ± 0.010            | 1.010<br>0.990 |          |                  |
| 2       | Stud        | 0.625Inches ± 0.010            | 0.635<br>0.615 |          |                  |
| 3       | Stud        | 0.500Inches + 0.005<br>- 0.000 | 0.505<br>0.500 | Diameter |                  |
| 4       | Stud        | 0.313Inches + 0.005<br>- 0.000 | 0.318<br>0.313 | Diameter |                  |
| 5       | Stud        | 0.062Inches ± 0.010            | 0.072<br>0.052 | Radius   |                  |
| 6       | Stud        | 0.300Inches ± 0.010            | 0.310<br>0.290 |          |                  |
| 7       | Stud        | 1.313Inches ± 0.010            | 1.323<br>1.303 |          |                  |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                        |  |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |                                                                                                                                        |  |
| Date :                                                       | Step #:                                                                                                                                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | <b>MRB (QSI042) Approval</b><br><br><div style="border: 1px solid black; height: 150px; margin-top: 10px;"></div>                      |  |
| <b>Description Work Order Deviation</b>                      |                                                                                                                                                                                    | <b>Disposition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                        |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                        |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                        |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | <b>Completed By</b><br><br><div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div>                                 |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | <b>Lead hand / Supervisor Approval Verification</b><br><br><div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div> |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | <b>QC / QA Coordinator Approval</b><br><br><div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div>                 |  |

| Root Cause                                  |                                                |                                                 | FAULT CATEGORY                                             |                                                |                                               |
|---------------------------------------------|------------------------------------------------|-------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| Environment <input type="checkbox"/>        | No Re-verification <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>        | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>      | Positioned Wrong <input type="checkbox"/>     |
| Design <input type="checkbox"/>             | Operator <input type="checkbox"/>              | Bending <input type="checkbox"/>                | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>         | Outside Dimensions <input type="checkbox"/>   |
| Doc/Data <input type="checkbox"/>           | Offset/Setup <input type="checkbox"/>          | Centre Not Concentric <input type="checkbox"/>  | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                 | Over/Under tolerance <input type="checkbox"/> |
| Equip/Tooling <input type="checkbox"/>      | Supplier <input type="checkbox"/>              | Cracks <input type="checkbox"/>                 | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                  | Part Incorrect <input type="checkbox"/>       |
| Handling/Pre <input type="checkbox"/>       | Training <input type="checkbox"/>              | Crimp/Kink/Ripple/Wave <input type="checkbox"/> | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>    | Part Lost/Missing <input type="checkbox"/>    |
| Material <input type="checkbox"/>           | Use for Testing <input type="checkbox"/>       | Cuffs <input type="checkbox"/>                  | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>       | Part Moved <input type="checkbox"/>           |
| Internal Transport <input type="checkbox"/> | Poor Information <input type="checkbox"/>      | Crushing <input type="checkbox"/>               | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>               | Drawing <input type="checkbox"/>              |
| Tribal Knowledge <input type="checkbox"/>   | Rushing <input type="checkbox"/>               | Heat Treat <input type="checkbox"/>             | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>            | Finish <input type="checkbox"/>               |
| LOA <input type="checkbox"/>                | Product Improvement <input type="checkbox"/>   | Wave/Twist in Tube <input type="checkbox"/>     | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>          | Misread <input type="checkbox"/>              |
| Substation <input type="checkbox"/>         | Process Improvement <input type="checkbox"/>   | Marks/Chatter <input type="checkbox"/>          | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/> | Turning Sequence <input type="checkbox"/>     |
| Past Expiry Date <input type="checkbox"/>   | Manufacturing Process <input type="checkbox"/> | <b>OTHER :</b> _____                            |                                                            |                                                |                                               |
| Misidentified <input type="checkbox"/>      | Past Due <input type="checkbox"/>              |                                                 |                                                            |                                                |                                               |

|    |      |                         |                |        |
|----|------|-------------------------|----------------|--------|
| 8  | Stud | 0.125Inches $\pm$ 0.010 | 0.135<br>0.115 |        |
| 9  | Stud | 0.772Inches $\pm$ 0.010 | 0.782<br>0.762 |        |
| 10 | Stud | 0.563Inches $\pm$ 0.010 | 0.573<br>0.553 | Radius |

Plex 6/20/18 8:23 AM Dart.lajeunesse.marie



DQA: \_\_\_\_\_ Date: \_\_\_\_\_

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |             |                       |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |             |                       |  |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Step #: _____                                                                                                                                                                      | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             | MRB (QSI042) Approval |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Disposition |                       |  |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="font-size: small; margin: 0;">DART Aerospace Ltd.<br/>1270 Aberdeen Street<br/>Hawkesbury, ON K6A 1K7<br/>CANADA<br/>TEL: 1 813 632-5200<br/>Email: sales@dartaero.com<br/>www.dartaero.com</p> </div> <div style="width: 45%; text-align: right;"> <p style="font-size: small; margin: 0;">Date: 07/27/18</p> </div> </div> <div style="margin-top: 20px;"> <p style="font-size: x-small; margin: 0;">Environment <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Design <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Doc/Data <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Equip/Tooling <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Handling/Pre <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Material <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Internal Transport <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Tribal Knowledge <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">LOA <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Substation <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Past Expiry Date <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Misidentified <input type="checkbox"/></p> </div> <div style="margin-top: 20px;"> <p style="font-size: x-small; margin: 0;">Rushing <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Product Improvement <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Process Improvement <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Manufacturing Process <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Past Due <input type="checkbox"/></p> </div> <div style="margin-top: 20px;"> <p style="font-size: x-small; margin: 0;">Heat Treat <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Wave/Twist in Tube <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">Marks/Chatter <input type="checkbox"/></p> <p style="font-size: x-small; margin: 0;">OTHER : <input type="checkbox"/></p> </div> |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |             |                       |  |

Cut Too Short ☐

Instructions Incomplete/Unclear ☐

Drill Holes ☐